

## AMPHIBIA: ANURA

ALLOPHRYNIDAE, *ALLOPHRYNE*, *A. RUTHVENI*

## Catalogue of American Amphibians and Reptiles.

Caldwell, J.P. and M.S. Hoogmoed. 1998. *Allophrynidae, Allophryne, A. ruthveni*.

**Allophrynidae Goin, Goin, and Zug**

*Allophrynidae* Goin, Goin, and Zug 1978:240. Type genus by monotypy, *Allophryne* Gaige 1926.

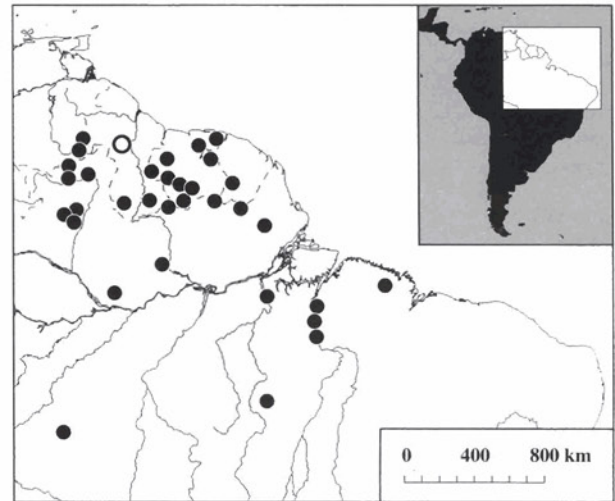
• **CONTENT.** This monotypic family contains a single recent genus, *Allophryne*.

• **DEFINITION, DIAGNOSIS, DESCRIPTIONS, ILLUSTRATIONS, DISTRIBUTION, FOSSIL RECORD, PERTINENT LITERATURE.** See species account.

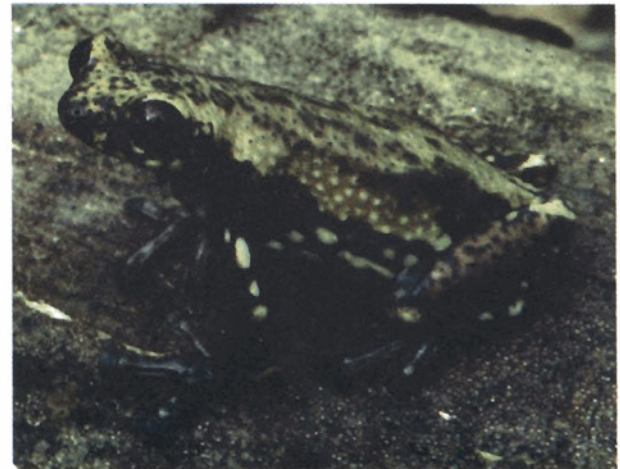
• **REMARKS.** The relationship of this species to other frogs has remained uncertain since its discovery. Gaige (1926) placed the frog in the family Bufonidae in the original description; Laurent (1979) and Dubois (1983) followed this arrangement. Noble (1931) considered it to be a toothless centrolenid. Lynch and Freeman (1966), Hoogmoed (1969, 1979), Duellman (1970, 1975, 1977), Frost (1985), and Duellman and Trueb (1986) considered this frog to be in the family Hylidae.

The family *Allophrynidae* was first proposed by Savage (1973), who was accepted as author of the family name by Dubois (1983, 1984), but the name was a *nomen nudum* because of the lack of a description or definition or a reference to such that differentiated the taxon as required by Article 13 of the International Code of Zoological Nomenclature (Lynch 1984). Savage (1986) subsequently reintroduced the name and stated that the familial characters were those provided for *Allophryne* by Lynch and Freeman (1966). Dubois (1985 [1986], 1986 [1987]) noted that the description of the family provided by Goin et al. (1978) was sufficient to satisfy the requirements of the Code and to establish the validity of the name (Duellman 1993).

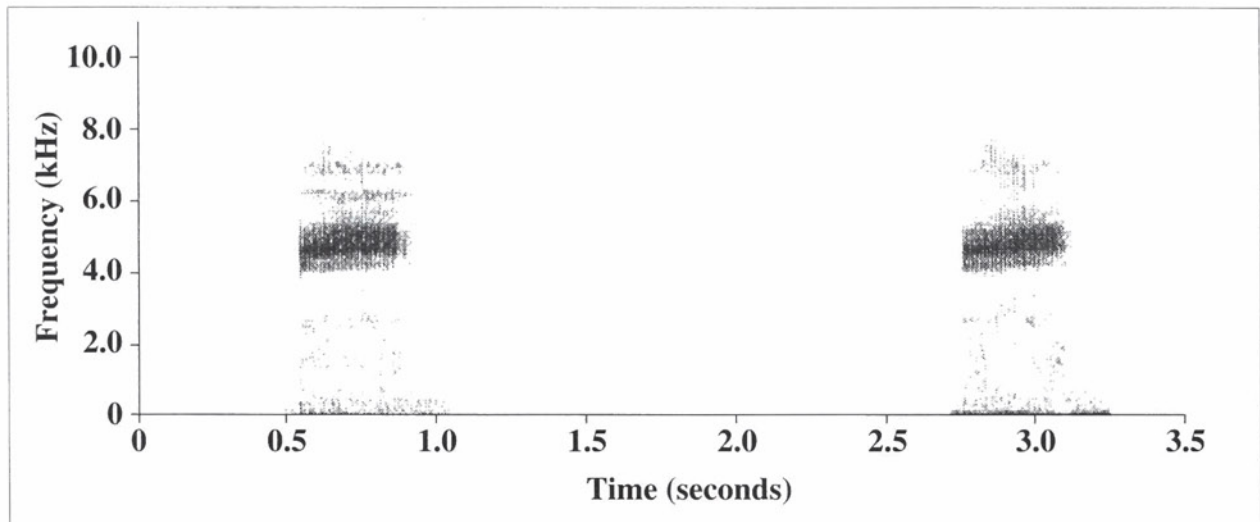
Ford and Cannatella (1993) reported that the inclusion of *Allophryne* in the family Hylidae rested on the assumption that intercalary cartilages like those of hylids are present in *Allophryne*. Those authors examined the toes and fingers of *Allophryne* using serial sections and found that cartilages like



**MAP.** Distribution of *Allophryne ruthveni*; the circle marks the type locality, dots indicate other records.



**FIGURE 1.** *Allophryne ruthveni*, MZUSP 63838 (JPC 6569) from 60 km E, 32 km S Altamira, on the Rio Xingu, Pará, Brasil (photograph by JPC).



**FIGURE 2.** Spectrogram showing two notes of the call of *Allophryne ruthveni* (MZUSP 68614), recorded at Apiaú, Roraima, Brasil.

those found in hylids and centrolenids were not present. In addition, *Allophryne* has T-shaped rather than the claw-shaped terminal phalanges of hylids. Ford and Cannatella (1993) therefore concluded that the placement of *Allophryne* in the family Hylidae brought into question the monophyly of Hylidae. Those authors stated that *Allophryne* should not be placed in any currently recognized higher taxon (except for Neobatrachia) at this time.

### *Allophryne* Gaige

*Allophryne* Gaige 1926:1. Type species, *Allophryne ruthveni* Gaige, by monotypy.

• **CONTENT.** A single recent species, *Allophryne ruthveni*, is known.

• **DEFINITION, DIAGNOSIS, DESCRIPTIONS, ILLUSTRATIONS, DISTRIBUTION, FOSSIL RECORD, PERTINENT LITERATURE.** See species account.

• **ETYMOLOGY.** Although not specifically stated by the author, *Allophryne* is derived from the Greek *allos* meaning other and *phrynos*, meaning toad. Presumably, the author meant to refer to the new species as another type of toad, since she placed this frog in the family Bufonidae (Gaige 1926).

### *Allophryne ruthveni* Gaige Ruthven's Frog

*Allophryne ruthveni* Gaige 1926:1. Type locality, "Tukeit Hill, below Kaiteur Falls, British Guiana." Holotype, University of Michigan, Museum of Zoology (UMMZ) 63419, a gravid adult female (SVL 31 mm), collected in May 1924 by E.N. Clarke (examined by MSH). A paratype mentioned in the original description was collected in Tumatumari, Guyana, on 20 September 1923. That specimen was subsequently given in exchange in 1923 to Harvard University and now is MCZ A-11790.

*Sphoerohyla seabrai* Bokermann 1958:43. Type locality, "Serra do Navio, Territorio Federal do Amapá, Brasil." Holotype, formerly in the private collection of W.C.A. Bokermann No. 3092, now Museu de Zoologia da Universidade de São Paulo (MZUSP) 74444, an adult male (SVL 21 mm), collected in October 1957 by K. Lenko (not examined by authors). After Bokermann's death in 1995, his collection was deposited in the MZUSP.

*Allophryne rethveni*: Zimmerman and Simberloff 1996:33. *Lapsus*.

• **CONTENT.** No subspecies are recognized.

• **DEFINITION AND DIAGNOSIS.** The original definition provided by Gaige (1926) was based on two specimens. Lynch and Freeman (1966) expanded this definition based on an additional five specimens. The pectoral girdle is arciferous and the sternum has a cartilaginous plate with no omosternum. The ilia extend anteriorly to dilated sacral diapophyses. The vomers, maxillae, and premaxillae are edentate. The tympanum was absent on the original two specimens (Gaige 1926), but was noted as smaller than the disk of the third finger by Lynch and Freeman (1966). The skin of the dorsum is pustulate (Lynch and Freeman 1966); Hoogmoed (1969) noted that males have large, numerous pustules, with a concentration on the top and sides of the head, whereas females have small, widely separated pustules. Hoogmoed (1969) also noted sexual dimorphism in the spotting of the throat, which is much more extensive in

females than in males. Tips of the toes were dilated into disks with T-shaped terminal phalanges. Whereas the holotype measured 31 mm (Gaige 1926), Lynch and Freeman (1966) reported that their largest female was 26.2 mm and their only male was 20.6 mm. The largest Surinamese female and male were both 22 mm (Hoogmoed 1969). Of 17 specimens from southeastern Venezuela, the largest female was 27 mm and the largest male 24.6 mm (Duellman 1997).

The dorsum is variable in color, but typically described as bronze, greyish-brown, gold, or yellowish-tan with darker spots or mottling and with gold or yellow-brown dorsolateral stripes. The dorsum bears sharp spicules, smaller and more widely spaced in females than males. The venter is coarsely areolate. The dorsal profile of the snout is subacuminate, sloping in lateral profile. The tympanum is visible only in males. The head is broad and the body is long and slender. Fingers lack webbing but toes are two-thirds webbed. Supernumerary tubercles are absent on soles or palms. No cartilaginous intercalary elements are present. Terminal phalanges are T-shaped. No tarsal fold is present.

The call of *Allophryne ruthveni* has been reported as a series of short notes (Duellman 1997). Caldwell (1987, field notes, Pará, Brasil) described it as a short, low, raspy trill. A specimen found calling among leaves of a small tree 3 m above ground near a small temporary pond was recorded by JPC at Apiaú, Roraima, Brasil, on 25 May 1991, air temperature 23.8°C; the voucher specimen, JPC 8055, was deposited in the Museu de Zoologia da Universidade de São Paulo and is now MZUSP 68614. The call is a series of single notes repeated at fairly regular intervals; the call rate is 18 notes per minute. Based on two notes, the mean call duration is 352.5 ms (338–367 ms). The dominant frequency is 4.71 kHz (4.12–5.51 kHz). The mean number of pulses per call is 24, and the mean pulse rate per second is 69.6.

• **DESCRIPTIONS.** The original description (Gaige 1926) was expanded by Lynch and Freeman (1966). Hoogmoed (1969) provided additional information on variation in color, texture of the skin, and size; his data are based on 15 specimens from Suriname, only 13 of which could be measured. Bokermann (1958) described a new species, *Sphoerohyla seabrai*, from the Serra do Navio, Amapá, Brasil, which was later referred to the synonymy of *A. ruthveni* (Bokermann 1966).

• **ILLUSTRATIONS.** A drawing was provided in the original description (Gaige 1926). Photographs and drawings of a frog originally described as *Sphoerohyla seabrai* (Bokermann 1958) are *A. ruthveni*. Lynch and Freeman (1966) provided line drawings of a dorsal view of a specimen (KU 69890), the skull, a lateral profile of the head, the right hand and the right foot, and the distal phalanges of the third finger. Hoogmoed (1969) included photographs of the dorsal views of a Surinamese female (RMNH 13830) and male (RMNH 13832); in addition, he included photographs comparing the extent of the pustules on the head of a male and a female, and four views of the throat pattern in two males and two females. Hoogmoed (1969) included a photograph of a living *A. ruthveni* (RMNH 13831) and the habitat in which Surinamese specimens were found. Duellman (1997) provided a color photograph of a living individual (KU 166717) from the Río Cuyuni, Bolívar, Venezuela.

• **DISTRIBUTION.** *Allophryne ruthveni* is widely distributed both north and south of the Amazon River, occurring from eastern Venezuela through Guyana, Suriname, and French Guiana to Amapá, Brasil. South of the Amazon River, the species occurs from the eastern part of the state of Rondônia in western Brasil to the state of Pará in eastern Brasil. Until recently, the species was believed to occur only in the Guianan forests

(Lescure 1975, Hoogmoed 1979, Duellman 1988). Caldwell (1996) noted that the first specimen south of the Amazon was collected in 1985; however, three specimens later found in Museu Paraense Emílio Goeldi had been collected in Pará in 1984.

• **FOSSIL RECORD.** None.

• **PERTINENT LITERATURE.** Relatively little information is available on the habitat, internal morphology, or natural history of *Allophryne ruthveni*. The tadpoles have not been described. Hoogmoed (1969) reported that all specimens collected by him in Suriname were within 100 m of a creek or river and came to the conclusion that *A. ruthveni* "seems to be a frog preferring not too dense forest near creeks and rivers, not venturing very far from the ground." Bokermann (1958) mentioned that the type specimen of *Sphoerophyla seabrai* was found in a terrestrial bromeliad. Caldwell (1996) found a large breeding congregation of several hundred individuals calling from 1–3 m above ground at the edge of the rising waters of the Rio Xingu in Pará, Brasil, on 8 March. The species also may use small, temporary ponds for breeding; Caldwell (1996) found a few calling individuals in trees along the edge of a small pond in primary forest in Roraima, Brasil, on 25–26 May, and Duellman (1997) reported finding individuals calling from small trees and bushes near a flooded depression in forest on 26 July in southeastern Venezuela. One pair found near the depression deposited 300 pigmented eggs after being collected. Zimmerman and Simberloff (1996) noted that tadpole development occurs in pools and that the postmetamorph habitat is "general forest," i.e., away from any specific aquatic habitat.

• **ETYMOLOGY.** The specific name is a patronym for Alexander G. Ruthven (1882–1971), an influential American herpetologist credited with bringing the University of Michigan to prominence during his presidency of that institution from 1929–1951 (Adler 1989).

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